

## Response order effects in long lists: primacy, recency, and asymmetric contrast effects

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Response Order Effects in Long Lists:  
Primacy, Recency, and  
Asymmetric Contrast Effects

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Response Order Effects in Long Lists:  
Primacy, Recency, and Asymmetric Contrast Effects

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Response Order Effects in Long Lists:  
Primacy, Recency, and Asymmetric Contrast Effects

Survey researchers are well aware that the order in which response alternatives are presented in a closed-response format may affect the obtained responses. However, the exact nature of the impact of response order is not well understood. Theoretically, primacy effects, that is, higher endorsements of items presented early in the list, as well as recency effects, that is, higher endorsements of items presented late in the list, may be obtained. Moreover, under some specific conditions, the order in which items are presented may result in asymmetric contrast effects, that is, certain response alternatives may affect the endorsement of other alternatives but may themselves be unaffected by response order.

In the present paper, we will address each of these effects, focusing on the use of lists of five and more response alternatives. Our data-base is provided by split-ballot experiments conducted by the Allensbach Institute since the early 1950's and by laboratory experiments. Response order effects emerging from the use of two or three response alternatives are addressed in a related paper by Hippler, Schwarz, & Noelle-Neumann (1989).



## Primacy and Recency Effects

Most studies bearing on the use of long lists observed the emergence of primacy effects (e.g., Payne, 1951; Mueller, 1970; Krosnick & Alwin, 1987). While recency effects have also been demonstrated, these demonstrations have typically involved the use of a small set of response alternatives (e.g., Payne, 1951; Schuman & Presser, 1981). Unfortunately, the number of response alternatives used in these studies is confounded with their presentation format: When many response alternatives are used, they are usually presented on a show card, whereas a small number of response alternatives is usually read to respondents. As discussed elsewhere (Hippler, Schwarz, & Noelle-Neumann, 1989), however, a visual presentation format fosters the emergence of primacy effects, whereas an auditory presentation format fosters the emergence of recency effects. This interaction of serial position and presentation format presumably reflects that the early items receive more extended processing when presented on show cards, whereas the later items receive more extended processing when read to respondents (cf. Krosnick & Alwin, 1987; Hippler et al., 1989).

Does this imply that long lists of response alternatives will usually elicit a primacy effect because these lists are usually presented on a show card? On first glance, the available data suggest so. Comparing the likelihood of endorsement for a given item if presented as the first or as the last item on the list, we find higher endorsements of the item if presented early across a wide range of different content areas, and Chart 1

shows just one of many examples.

#### Chart 1

In seventeen studies using this format, we observed fourteen primacy effects, but only one recency effect. Note, however, that the conclusion that primacy effects dominate the field, whereas recency effects are rare in a visual presentation format, is potentially misleading. In all of these examples, as in all studies that we could locate in the literature, only two response orders were compared, as shown in Chart 2.

#### Chart 2

That is, the presentation order was simply reversed, making the first item of List A the last item of List B. Accordingly, a recency effect could only be detected if no primacy effect emerged to begin with, or if the recency effect were stronger than the obtained primacy effect. It is therefore conceivable that primacy and recency effects operate simultaneously, but that primacy effects are more pronounced, thereby diluting the weaker recency effects.

A series of studies conducted by Erp Ring (1974; 1975) of the Allensbach Institute bears on this possibility. Unfortunately, these studies have received little attention in the literature. In three surveys, each based on representative samples of about 2000 adult West German citizens, respondents were presented a list of eighteen famous individuals and were asked to select the ones that they like best. A different list of names was used in each survey, thus providing three stimulus

replications, and the names were presented in four different order conditions. The results clearly indicate the simultaneous operation of primacy and recency effects, as shown in Chart 3.

#### Chart 3

Specifically, across all three surveys, a given person was more likely to be selected if presented in the first position of the list than if presented in the middle of the list (positions 9 or 10), reflecting an average primacy effect of 3.7%. However, compared to an average endorsement of 13.5% if presented in the middle of the list, the likelihood of being selected increased to 15.5% if the same person was presented in the last position, reflecting an average recency effect of 2%.

This pattern of findings nicely illustrates the methodological shortcoming of studies that involve only two order conditions. If we restricted ourselves to a comparison of the first and last position in the list, we would conclude that a small primacy effect of 1.7% emerged and we could not observe the simultaneous operation of a recency effect, because the latter is diluted by the larger size of the former.

What do we learn from these data?

- First, from a cognitive perspective, we learn that both primacy and recency effects operate simultaneously if a long list of response alternatives is presented on show cards. In terms of our previous argument (Hippler et al., 1989), it seems that both the early and the late items are more likely to be more extensively processed in a visual presentation



format than the items presented in the middle of the list.

- Second, we learn that primacy effects are larger than recency effects in visually presented long lists of response alternatives.

- Third, we conclude that the size of primacy effects in long lists has typically been underestimated. Studies that use only two response orders do in fact compare the primacy effect emerging on List A with the recency effect emerging on List B. Thus, the typically reported size of the primacy effect is actually the degree to which the size of the primacy effect exceeds the size of the recency effect.

- In combination, these findings imply that the methodological control of response order effects requires -- at the least-- more than two response orders (Ring, 1974, 1975), but should preferably involve randomization of response order, a possibility that can easily be realized with the evolving CAPI and CATI technology.

Additional analyses, which are currently being conducted, will attempt to identify factors that moderate the size of primacy and recency effects, such as the number and complexity of the response alternatives, or the degree of attitude crystallization regarding the issue under study (see also Noelle-Neumann, 1974).

## Asymmetric Contrast Effects

However, the likelihood that an item is endorsed is not only a function of its serial position on the list per se, which may determine its degree of processing. Rather, the likelihood of endorsement is also affected by the nature of the preceding items. This fact contributes considerably to the confusing complexity of empirical findings in the area of response order effects. Specifically, if a given item is preceded by an item that is more extreme on the dimension of judgment, a contrast effect may emerge.

Assume, for example, that an extremely well-liked person is presented in the middle of the list, as shown in Chart 4.

## Chart 4

If so, moderately liked persons who are presented in the second part of the list will seem less likable by comparison. They will therefore be less likely to be selected as "liked" under this order condition. If we compared the two orders of this list, the judgmental contrast effect would therefore lead us to conclude that a pronounced primacy effect emerged. On the other hand, if the person presented in the middle of the list were extremely dislikable, the same mechanism of judgmental contrast would increase the endorsement of moderately liked persons presented in the second half of the list. In that case, a comparison of both order conditions would lead us to conclude that a pronounced recency effect emerged. Note, however, that the underlying cognitive process of judgmental contrast is

quite different from the attentional processes that generate the order effects discussed above.

An example for such a contrast effect was reported by Noelle-Neumann (1970). Specifically, respondents were presented a list of food items and were asked to select the ones that are typically "German". Respondents were more likely to consider a number of food items, such as noodles or potatoes, as typically "German" when they were preceded by rice than when they were not. Thus, introducing rice as the first item resulted in pronounced contrast effects in the perception of the other food items, as shown in Chart 5.

#### Chart 5

Finally, the evaluation of rice itself was unaffected by order manipulations.

While primacy and recency effects in lists are presumably a function of the attention that a given item receives in different positions, contrast effects are thought to be a function of the items' extremity on the underlying dimension of judgment. Introducing a more extreme item results in a wider "perspective" regarding the set of stimuli, thus affecting their evaluation as described in Ostrom & Upshaw's (1968) perspective theory. Accordingly, contrast effects should also emerge under conditions where each item is likely to receive about the same degree of attention. To explore this possibility, we used a rating rather than a selection task in a laboratory experiment. Specifically, we asked subjects to rate

each of a number of drinks according to how typically "German" they are (Schwarz & Munkel, 1988). As expected, all drinks were rated as more typically "German" if an atypical drink, namely vodka, was presented as the first rather than as the last item. The rating of vodka, on the other hand, was not affected by the order manipulations, as shown in Chart 6.

#### Chart 6

That is, an asymmetric contrast effect emerged, as predicted by Ostrom & Upshaw's (1968) perspective theory. According to that model, respondents use the most extreme stimuli that come to mind to anchor the response scale. In the present case, presenting vodka as the first item made this atypical drink highly salient, resulting in a shift of the moderate stimuli away from the anchor. Vodka as the most extreme stimulus in the set, however, is itself unaffected by the order manipulation because the most extreme stimulus is assigned the extreme scores under any order condition -- except if preceded by a more extreme stimulus.

Moreover, contrast effects of this type do not require that the items are presented on the same list. Rather, they have also been shown to emerge if the extreme item is presented as part of a preceding question, provided that this question taps the same dimension of judgment. For example, in a study by Schwarz, Munkel and Hippler (unpublished data) we asked some respondents to estimate the percentage of Germans who drink vodka, and others to estimate the percentage of Germans who drink beer. Subsequently, they were asked to rate the

typicality of various drinks. As shown in the next chart,

Chart 7

subjects who estimated the percentage of Germans who drink vodka rated subsequent drinks as more typically German than subjects who estimated how many Germans drink beer. This replicates the contrast effects obtained when all stimuli were presented on the same list. Other subjects, however, were asked as part of the preceding questions to estimate the caloric content, rather than the consumption, of vodka or beer. While this question also serves to render these drinks highly salient in the interview context, it does not tap the typicality dimension that underlies estimates of the consumption of these drinks. Accordingly, estimating their caloric content did not influence subsequent typicality ratings, as shown in the bottom part of Chart 7. Thus, we conclude that contrast effects can emerge as a function of preceding questions if these questions tap the same underlying dimension of judgment.

The documented emergence of contrast effects bears in important ways on the emergence of primacy and recency effects in general. Specifically, it provides an interesting account for data sets that do not follow a clear-cut primacy / recency pattern: If an extremely positive item is presented as part of the stimulus set, it will decrease the endorsement of subsequent moderate items. If an extremely negative item is presented, on the other hand, it will increase the endorsement of subsequent moderate items. These judgmental effects may lead the researcher to conclude that the data show pronounced

recency or primacy effects. Accordingly, the phenomenon of judgmental contrast may dilute the emergence of attentional phenomena, thus contributing to the mixed findings that characterize this area. In fact, in the few "deviant" examples that we could locate in the Allensbach experiments, deviations from our generalizations about the emergence of primacy and recency effects as a function of serial position and presentation format can be plausibly accounted for by the extremity of items introduced in the middle of the list, thus generating contrast effects in the endorsement of later items.

### Conclusion

In summary, the findings reviewed in the present paper and its companion volume (Hippler et al., 1989) indicate that responses to a list of items are a function of attentional as well as of judgmental processes. In combination, they suggest the following hypotheses:

- In general, a response alternative is more likely to be endorsed the more attention it receives and the more extensively it is processed, as was suggested by Krosnick & Alwin (1987).
- If an item receives extensive processing or not, is in part determined by its serial position on the list and by the administration mode used, as elaborated by Hippler et al. (1989). If the response alternatives are read to respondents,

the later ones are more likely to be extensively processed than the early ones, resulting in recency effects. If the items are presented visually, the early ones are more likely to be processed, resulting in primacy effects.

- Moreover, conditions that elicit extensive processing independently of the item's serial position are likely to eliminate response order effects, as would be predicted on the basis of the above assumptions (cf. Hippler et al., 1989 for experimental evidence).

- In addition, extensive processing may reveal flaws in an argument and may therefore decrease endorsement of the respective item, although data bearing on this possibility are not yet available -- primarily because highly implausible response alternatives are unlikely to be included in a survey to begin with.

- Largely independent of these attentional processes, the content of preceding items may influence the criteria that respondents use in making a judgment, resulting in contrast effects if extreme items precede more moderate ones. These judgmental processes may under some conditions override the emergence of elaboration based primacy and recency effects, contributing to the complexity of response order phenomena, that has puzzled researchers for a long time.

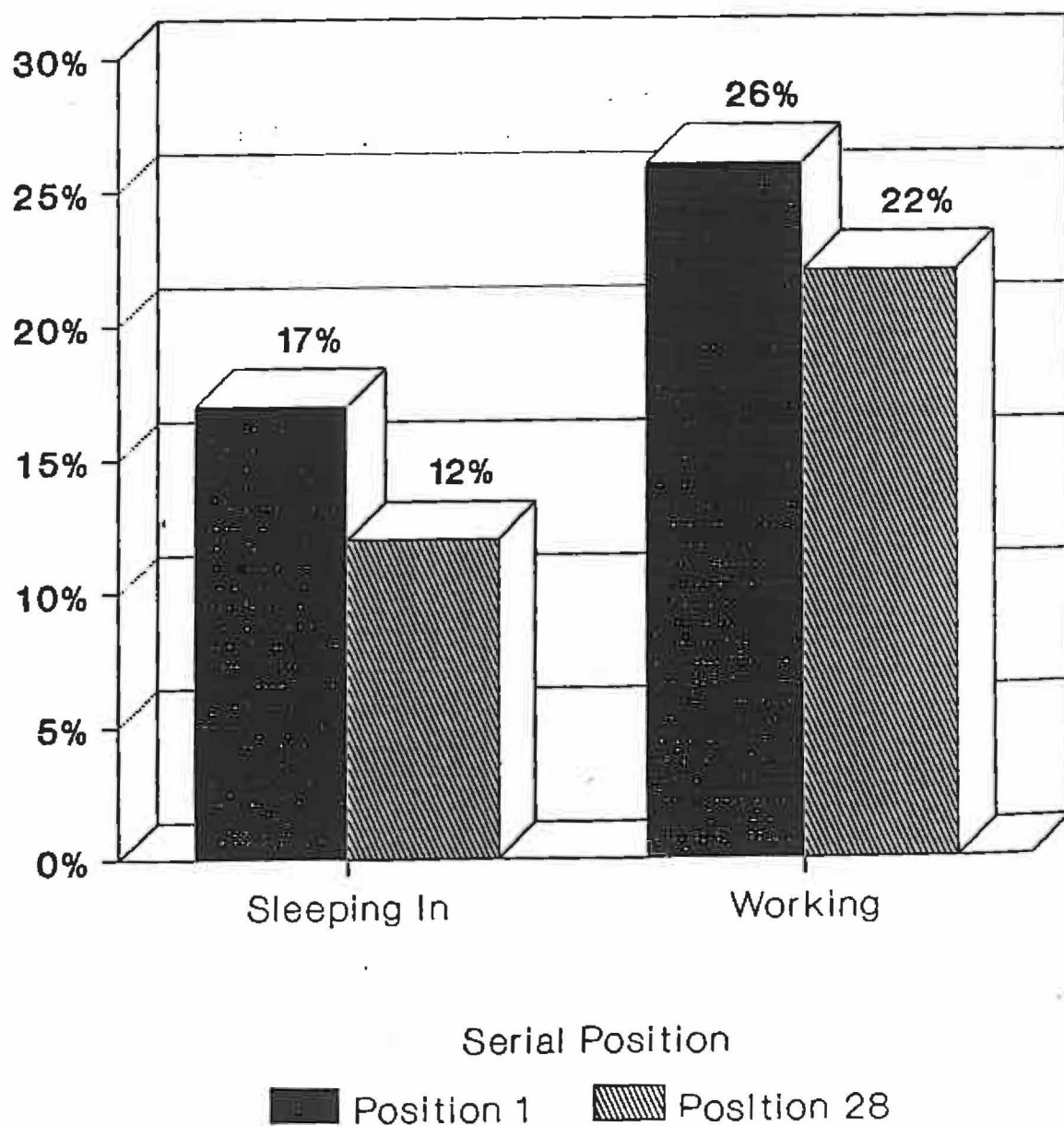
Based on the data we have seen, we feel that the joint consideration of these variables is likely to provide a coherent theoretical account for the emergence of response order effects. This being said, we can only hope that the above hypotheses will survive the next round of experiments.



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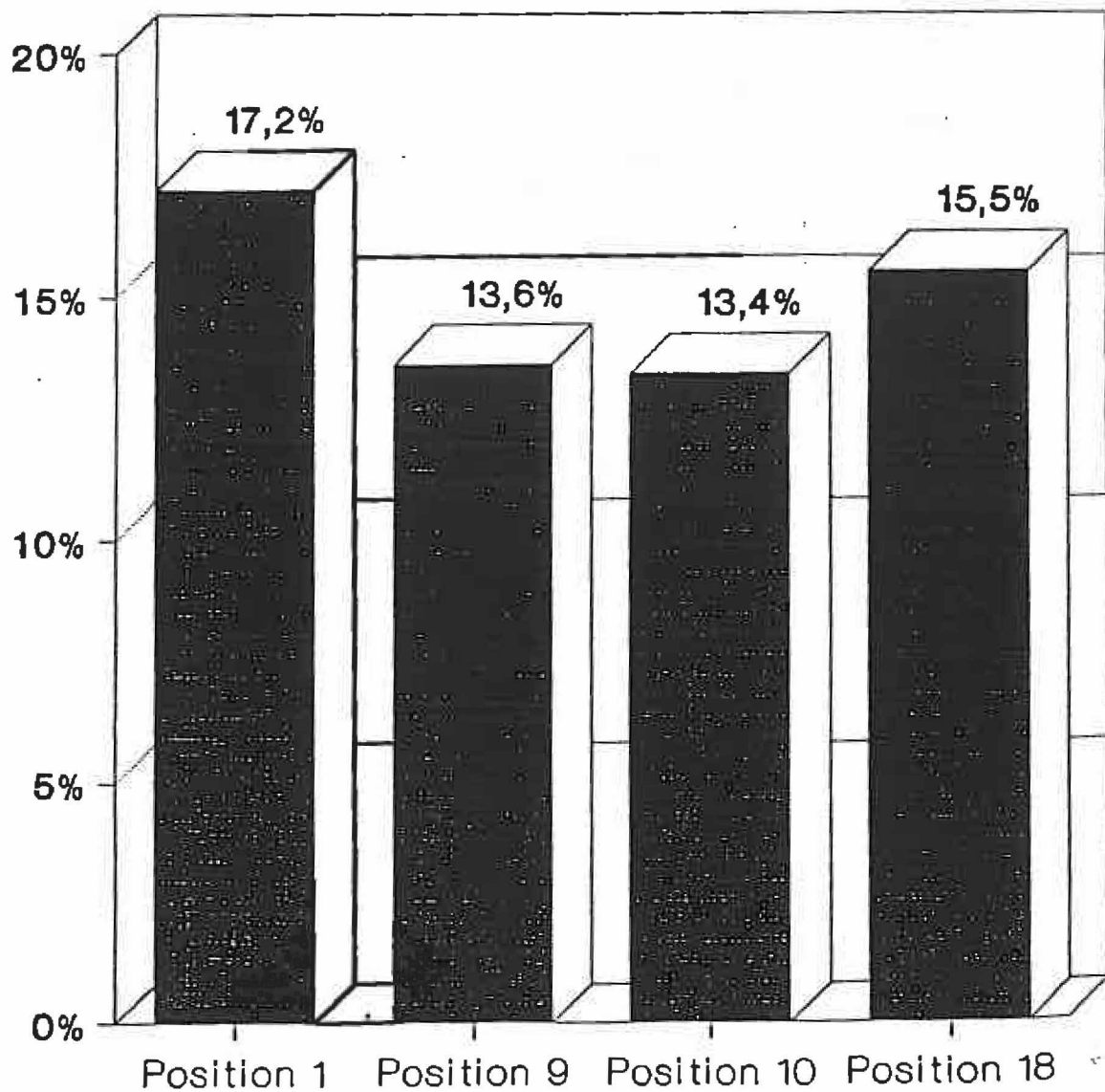
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# Primacy Effects in Lists: What Did You Do Last Saturday?



*IfD 1022; Sept. 1958*

## Primacy and Recency Effects Operate Simultaneously



Serial Position (N = 5901 / position)

Ring, E. (1975). *European Research*,  
3, 111-119.

# Typical Design

Condition A

Item A

Item B

.

.

.

Item M

Item N

Condition B

Item N

Item M

.

.

.

Item B

Item A

# Introducing Extreme Items

Condition A

Item A

Item B

EXTREME

Item M

Item N

Condition B

Item N

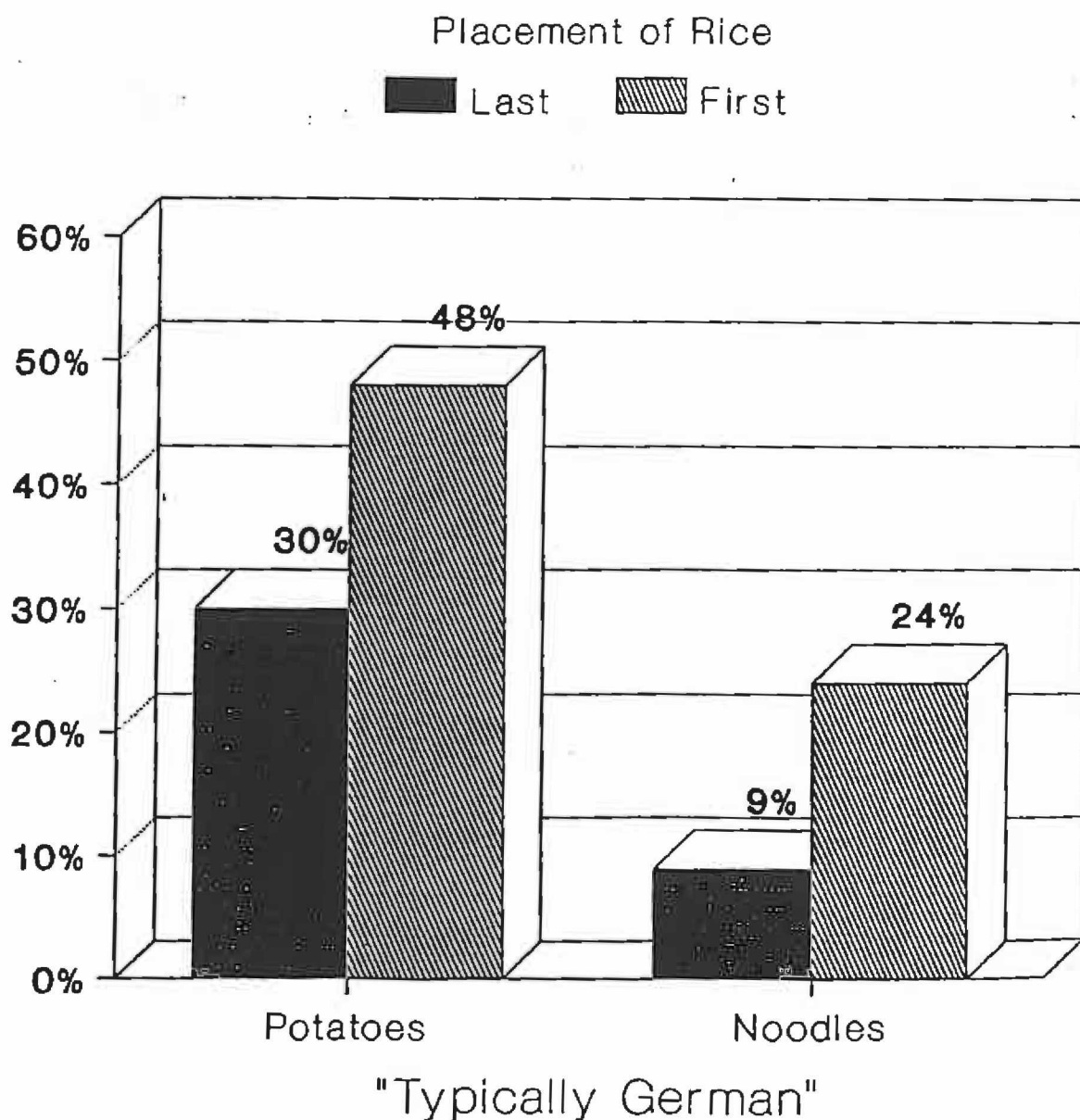
Item M

EXTREME

Item B

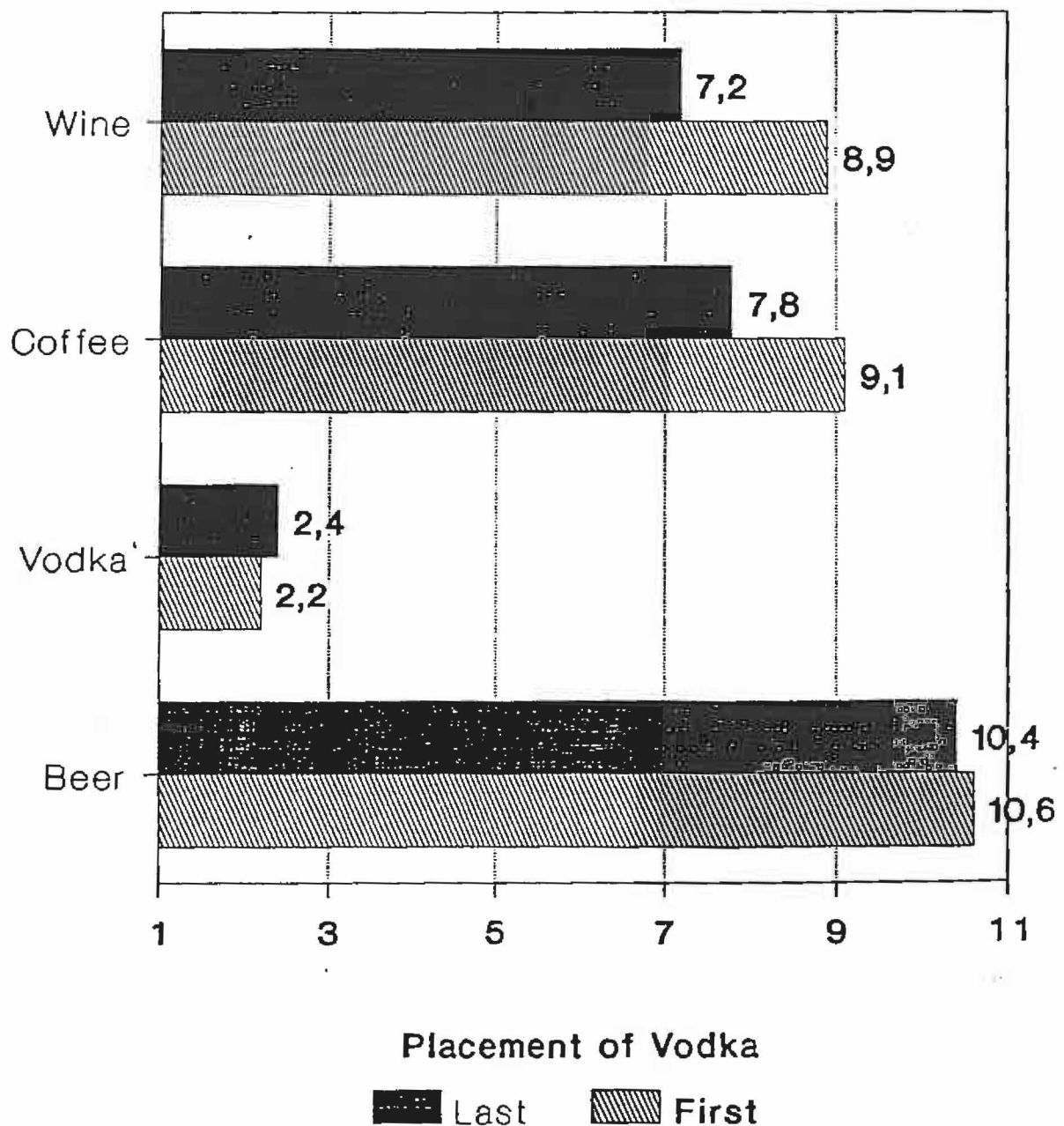
Item A

# Contrast Effects: Extreme Items Affect Moderate Ones



Noelle-Neumann (1970). *Public Opinion Quarterly*, 34, 131-201.

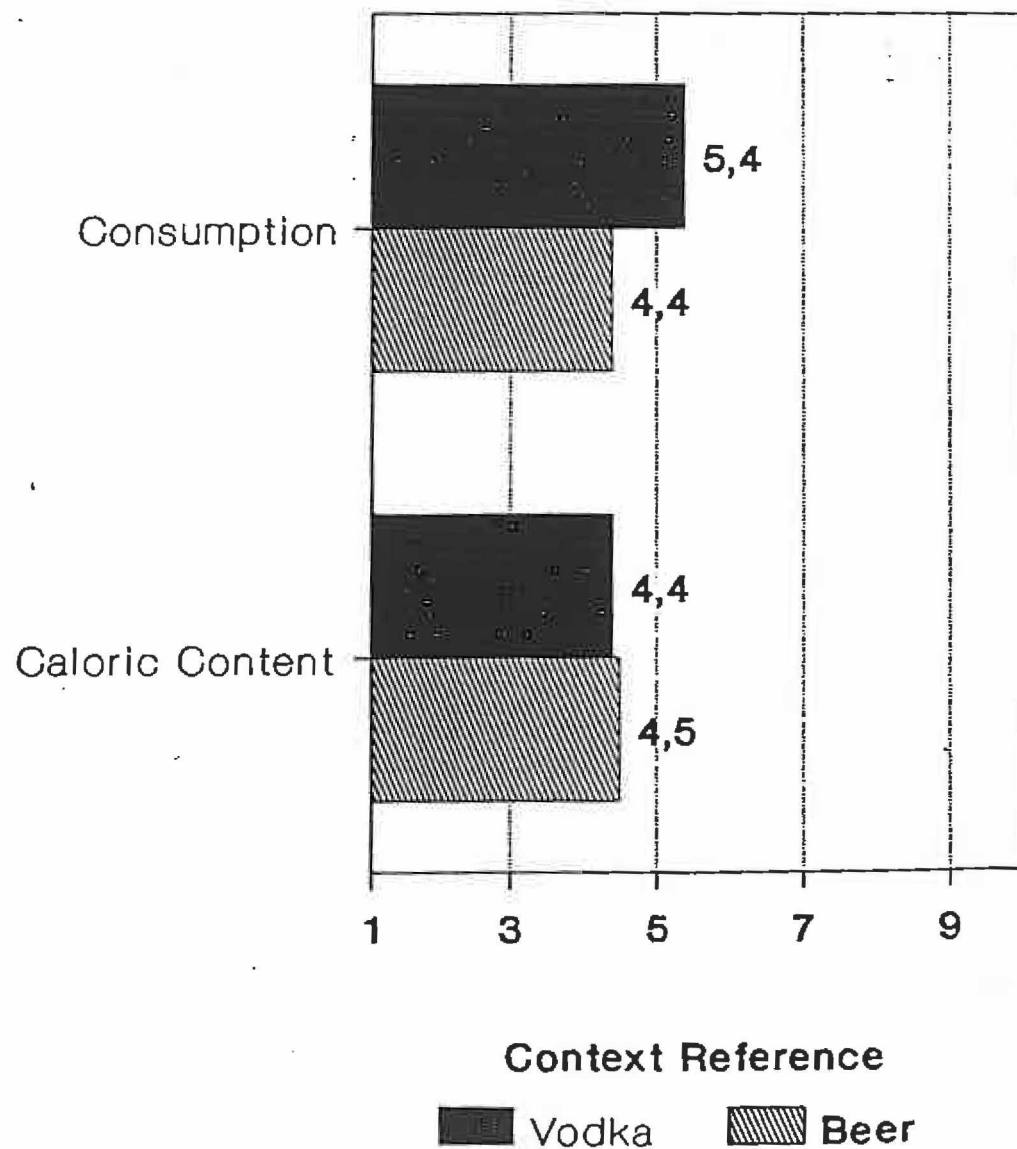
# Contrast Effects in Ratings



*Schwarz & Münkler (1988).*

# Contrast Effects as a Function of Preceding Questions

Context Question



Schwarz, Münkel, & Hippler (1989)



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